HANULA, P.

Effect of the conditions of wetting on the extract of maize starch. p. 484.

CHEMICKE ZVESTI. (Journal on applied chemistry issued by the Slovak Academy of Sciences and the Slovak Chemical Society. Monthly).
Bratislava, Czechoslovakia, Vol. 13, No. 7/8, July/Aug., 1959.

Monthly List of European Accessions, (EEAI), LC, Vol. 8, No. 12, Dec. 1959.
Uncl.

HANULA, Peter; CUNDERLIKOVA, Marta

Production of biologically active yeast by the semicontinuous
method. Kvasny prum 10 no. 2: 36-39 F '64.

1. UVUPP, pobocka Bratislava.

SYKORA, M.; HANULIK, J., inz.

Junction rail bonds on the line section at the foot of a hill.
Zel dop tech 12 no.11:288-289 '64.

HANULOVA, A.

SURNAME (in caps); Given Names

Country: ·Czechoslovakia   ⚡ ⑦

Academic Degrees: /not given/

Affiliation: Institute of Epidemiology and Microbiology (Ustav epidemiologie a mikrobiologie), Bratislava; Director (Riaditel); Doc MUDr J Karolcek

Source: Bratislava, Lekarsky Obzor, Vol X, No 7, 1961, pp 427-437

Data: "Investigations of the Occurrence of Hemolytic Streptococci in Two Children's Collectives in Bratislava."

   Authors:
   KESTNEROVA, V
   CERVENKA, J

   Technical Associates:
   HANULOVA, A
   ADAMCOVA, A
   ADAMEC, J

HAN S, B.

Parallel operation of several regulators, p. 508, STROJIRENSTVI
(Ministerstvo strojirenstvi) Praha, Vol. 5, No. 7, July 1955

SOURCE: East European Accessions List (EEAL) Library of Congress,
          Vol. 4, No. 12, December 1955

HANUS, D.; FALCAN, J.; MIKULEC, M.

An electrical analogy for a heat exchanger.

P. 36. (SLABOPROUDY OBZOR.) (Praha, Czechoslovakia) Vol. 19, No. 1, Jan. 1958

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, 1958

HANUS, B.

"ZPA electronic-differential analyzer."

AUTOMATISACE, Praha, Czechoslovakia, Vol. 2, No. 7, July 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959.

Unclassified.

HANUS, Bohumil

> General considerations for determining the economy of production
> lines in making leather ware. Kozarstvi 12 no.12:351-352 D
> '62.
>
> 1. Zavody A.Zapotockeho, n.p., Jaromer.

HANUS, Bohuslav, promovany ekonom, ScC.; DVORAK, Jaroslav, inz.

Some problems of determining the economic effectiveness of continu-
ous transportation. Doprava no.3:223-228 '63.

HANUS, Bohuslav

Simple device for signaling the fallout of phase. Elektro-
technik 19 no.2:56   F'64

HANUS, Bohuslav, promovany ekonom, CSc.; DVORAK, Jaroslav, inz.

Problems of determining the economic effectiveness of ropeways.
Doprava no. 2:89-95 '64.

HANUS, Bohuslav, provovany ekonom CSc.

Normative coefficients of investment effectiveness in
transportation, and thier determination.   Doprava 6
no.6:408-414 '64.

S/194/62/000/008/028/100
D201/D308

AUTHOR: Hanuš, Bořivoj

TITLE: Problems of optimum control in systems using a
             constant speed servomotor

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, ·
             no. 8, 1962, abstract 82-141 sh (Souhrn prací o auto-
             mat., 1959, Prague, 1961, 77-97 [Czech.; summary in
             Eng.])

TEXT: Analysis of a control system using a servomotor stage with
either constant or limited speed for any initial conditions. The
purpose of the analysis is the determination of conditions for mini-
mum duration of the transient or of programming. The method of successive approximations is proposed for this analysis. The method has
several advantages over the phase space method. Both methods of solution are illustrated with concrete examples of automatic control
systems. [Abstracter's note: Complete translation.]

Card 1/1

HANUS, Borivoj; VAVRA, Karel

Some control algorithms for a digital computer. Stroj na zprac inf 10:119-139 '64.

1. Zavody prumyslove automatizace National Enterprise, Prague.

HANUS, Borivoj, inz., C.Sc.; STEPAN, Jaromir, inz.

Effect of design parameters on the dynamics of a superheater; contribution to the discussion. Automatizace 5 no.7:194 Jl '62.

HANUS, Borivoj, inz., C.Sc.

Examination of the nonstationary state of a generator. Energetika
Cz 13 no.4:181-183,190 Ap '63.

1. Zavody prumyslove automatizace, n.p., Praha.

L 12228-63

S/271/63/000/004/042/045

AUTHOR: Hanus, Borivoj

TITLE: A device for converting continuous quantities into discrete quantities, and the reverse

PERIODICAL: Referativnyy zhurnal, Avtomatika, telemekhanika i vychislitel'naya tekhnika, no. 4, 1963, 62, abstract 4B346 (Czechosl. pat., kl. 42m, 14, no. 100824, 15.09.61)

TEXT: The text describes a patented converter for changing continuous quantities into discrete ones, and the reverse; it is characterized by the possibility of using codes of any structure, by the absence of decoding devices and by the property of reversibility. The principle of the invention is based on the fact that the sources of the reference values of the continuous and discrete portions of the device are linked with each other, i.e. mechanically—so that to each value of a continuous reference quantity (voltage or current) there corresponds a definite value of a discrete quantity. The sources of the reference quantities are periodically subjoined to counting devices. One of them is associated with the input of the comparison circuit; to each input of the circuit is delivered a compared signal E. At the moment when the quantities of the compared and the reference signal are equal, from the output of the comparison circuit is delivered a resolving pulse to

Card 1/2

L 12228-63

S/271/63/000/004/042/045

A device for converting .....

the logical circuit; this guarantees receipt of a converted signal at the output
of this circuit. For purposes of reverse conversion the sources of reference vol-
tages are changed in position, while the discrete signal subject to transformation
is conducted to the comparison scheme. The patented device can be used also as a
function generator (continuous or discrete); this makes possible the use of a
second source of corresponding signals which realizes the required function or
transformation. There are 4 illustrations.

/Abstracter's note: Complete translation/

Card 2/2

HANUS, Borivoj, Inz. CSc.

Digital control with limiting conditions on the final control element movement. Automatizace 7 no. 7:169-172 Jl '64.

1. Zavody prumyslove automatizace National Enterprise.

L 56451-65
ACCESSION NR: AP5018805   0Z/0032/64/014/008/0581/0584

AUTHOR: Hanus, B. (Engineer, Candidate of sciences)

TITLE: Approximation modeling of transfer condtions in steam overheaters on analog computers

SOURCE: Strojirenstvi, v. 14, no. 8, 1964, 581-584

TOPIC TAGS: steam superheater, analog computer, computer calculation, approximation calculation

Abstract [Author's English summary, modified]: An explicit calculation of transfer conditions in steam overheaters is extremely difficult, even when an analog computer is used, since the number of available integrators is too low for the system of partial differential equations describing the transfer. The author proposes a method facilitating and shortening calculations by simplifying the mathematical model. Despite its simplicity the method is reliable and was tested in practice.

Card 1/2

L 56451-65

ACCESSION NR: AP5018805   0

ASSOCIATION: ZPi., Prague

SUBMITTED: 00   ENCL: CO   SUB CODE: IE, DP

NR REF SOV: 000   OTHER: 009   JPRS

Card 2/2

HANUS, Borivoj, inz, CSc.

Control algorithm for digital computers at an arbitrary
combination of sampled values of the variables of the system.
Automatizace 8 no.1:1-6 Ja '65.

1. Zavody prumyslove automatizace National Enterprise, Prague.

HANUS, Danuta, mgr inz.; KROL, Antoni, mgr inz.

Factors influencing the settlement of slir :. Rudy i metale 8 no.3:
94-97 Mr '63.

HANUS, Danuta, mgr inz.; KRYNICKI, Jerzy, mgr inz.; BONAREK, Edmund,
    mgr inz.

    Studies on the nickel sulfate crystallization conditions of
    sulfuric acid solutions. Rudy i metale 9 no, 3:432-437 Ag '64.

HANUS, Danuta, mgr inz.; RIESENKAMPF, Antoni, dr.

Influence of the composition of mixed blendes on their hydrometal-
lurgical properties. Rudy i metale 9 nc.12:664-668 D '64.

BONAREK Edmund, mgr inz.; HANUS, Danuta, mgr inz.; ZIĘTY, Jan, mgr

Methods of processing waste electrolytes from copper refineries,
Rudy i metale 10 no.2:68-72 F '65.

HANUS, F.

5450. UTILIZATION OF LOW GRADE FUELS IN METAL INDUSTRY. Hanus, F.
(Hutnik (Smelter, Prague), Nov. 1955, vol. 5, 257, 250). An account of recent
trends and developments in the utilization of low grade fuel to replace coking
coal is given. The use of lignite-charcoal-tar triquetted, the sulphur and
ash content of which has been reduced by treatment with hydrogen and chlorine,
perfected by Silkenroth and Raemler, is described. The need for accurate
temperature control when coking low grade coal, and the disadvantages of
quenching coke with water, the use of charcoal and anthracite-coke mixtures in
Russian blast furnaces, and developments in fuel saving techniques in
Czechoslovakia are considered.   I.S.I.

HANUS, J.

"First automatic fish lift at the Nosice Water Works." p. 154.

STAVBA. (Poverenictvo stavebnictva). Bratislava, Czechoslovakia,
Vol. 6, No. 5, May 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8,
August 1959.
Uncla.

HALUS, J.

Function and organization of designing in an enterprise. p. 628

POZEMNI STAVBY. (Ministerstvo stavebnicty) Praha, Czechoslovakia, Vol. 7, no. 12, 1959

Monthly List of East European Accessions (EEAI), LC. Vol. 9, no. 2, Feb. 1960

Uncl.

HANUS, J. - Strojirenstvi - Vol. 5, no. 4, Apr. 1955.

Mathematical machines help industry. p. 306.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955
                                                                    Uncl.

HANUS, J.

HANUS, J. Sidecar for the JAWA-CZ motorcycle. p. 368

Vol. 10, no. 12, June 1956
SVET MOTORU
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accession Vol. 6, no. 2, 1957

HANUS, J. Ing. (Praha XII, Tr. W. Piecka 98)

New method of planning preparation. Pracovni lek. 9 no.4:350-352
Sept 57.

1. Ministerstvo zdravotnictvi, hygienicky a protiepidemicky odbor.
        (PUBLIC HEALTH,
                in Czech., planning of hyg. & antiepidemic center (Cz))

HANUS, J.

Jaroslav Hanus and Vladimir Munk, "Metabolismus von Kohlenhydraten bei
Eremothecium Ashbyii," Die Naturwissenschaften (Berlin), 45/1, January
1958, p. 14.

Received on 14 November 1957.
Research Institute for Food Technology, Prague 16, Na Belidle 21.

HAMUS, J.; MUNK, V.

7th International Microbiological Congress in Stockholm. p. 298.

PRUMYSL POTRAVIN. (Ministerstvo potravinarskeho prumyslu) Praha, Czechoslovakia,
Vol. 10, no. 6, June 1959.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 11,
November 1959.

uncl.

_____, _. ; _ , _.

Statistical control in the food industry. p. 396

PRUMYSL POTRAVI... (Ministerstvo potravinarskeho prumyslu)
Praha, Czeckoslovakia   Vol. 10, no. 10, Oct. 1959

Monthly list of East European accession, (EAI), LC, Vol. 9, No. 12, Dec. 1959
Uncl.

CZECHOSLOVAKI./Chemical Technology. Chemical   H
               Products and Their Applications.
               Food Industry.

Abs Jour : Ref Zhur-Khimiya, No 6, 1959, 21285

Author   : Hanus, Jaroslav; Matejovsky, Karel;
            Necadova, Marie
Inst   : -
Title   : Sanitation in Bread Baking.

Orig Pub : Prumysl potravin, 1958, 9, No 6, 317-321

Abstract : No abstract.

Card   : 1/1

                    H-173

HANUS, Josef   DECEASED

Chemistry

see ILC

HANUS, T.

3309. Graphical calculation of condenser bushings considering a finite number of metal foils. HANUS, Y. *Elektrotech. Obz.*, 37, 465–70 (Nov., 1948) In Czech.—Earlier work by the author [*Elektrotech. Obz.*, 165 (1943)] gave a nomographic method for determining the relation between ratio of the reduced thicknesses of the first and last insulating layers, and the ratio of lengths of the first and last metal foils. Uniform voltage distribution in an axial direction and a finite number of foils were assumed. This solution considers the expression for the max. radial gradient between two consecutive conducting cylinders, i.e. the gradient on the surface of the inner cylinder, $G_r = 2E/(D_{K-1} \log D_K/D_{K-1})$. This is more exact than the formula for an infinite number of foils, the accuracy of which is not sufficient for < 10 foils. The present paper enables the method to be applied in practice, giving the min. dia. of bushing for a given conductor diameter, the length ratios of the conducting cylinders, the coefficients entering the formula, etc.   B. Y. K.

Hanuš, J.

5051.   Short-circuit-proof current transformers. J. HANUŠ. *Elektrotech. Obzor*, 44, No. 5, 286–90 (1955)   621.314.224

EE In Czech.

The capacity of current transformers to withstand short-circuits is an important characteristic in the case of branch lines of comparatively small power input supplied by installations of high output. A nomogram is given for selecting the degree of short-circuit-proofness of a current transformer to suit given conditions. Two production series of such transformers, for cascade connection, with overcurrent factors of 250–1300 are described.

ELECTRICAL RESEARCH ASSOCIATION

HANUŠ, J.; KOPECKÝ, A.

Current and voltage transformers for 220 kV. p. 306.

ELEKTROTECHNIK. Vol. 11, no, 10, Oct 1956

Praha, Czechoslovakia

SOURCE: East European List (EEAL) Library of
         Congress, Vol. 6, No. 1, January 1957

HANUS, J.

631.314.222

2124.   INCREASE OF THE OUTPUT OF VOLTAGE TRANS-
FORMERS BY AN AUXILIARY COMPENSATING DEVICE.

J. Hanuš.
Elektrotech. Obzor, Vol. 45, No. 2, 57-63 (1956). In Czech.
        The principle of the compensating circuit for a voltage
transformer is explained and the practical application de-
scribed with reference to the type NAK/COF 110 compensator.
An elementary theory of the errors of voltage transformers
is given, together with a method of determining the compon-
ents of the transformer impedance from results of the calibra-
tion. The increase in output obtained range from 130 to 280%.
                        Electrical Research Association

HANUS, J.

TECHNOLOGY

ELEKTROTECHNICKY OBZOR.

HANS, J. Answering the discussion concerning the terms _amperzavity_ and _proudeni_ p. 657.

Vol. 47, No. 12, Dec., 1958

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 5 May 1959, Unclass.

S/196/62/000/022/007/007
E194/E155

9,2120

AUTHORS: Hanus, Jan, and Vrtel, Leo

TITLE: Cascade current transformer

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
             no.22, 1962, 28-29, abstract 22 I 149 P. (Czech. pat.
             cl. 21d^2, 53/01, no.99246, April 15, 1961)

TEXT: The bushing-type current transformer, the construction
of which is patented, withstands short-circuit currents very well.
It is a two-stage cascade. The construction is similar to that of
a pedestal-type current transformer, which is simpler, because in
it the short-circuit current passes only through the primary
winding of the first stage, whereas in that under consideration
the current must also pass through the second stage. Only the
second stage is insulated for high voltage. The first stage has
low-voltage insulation, so that its core (made of toroidal strip)
has a very short mean magnetic path length and consequently low
magnetising ampere turns. For a given accuracy this makes it
possible to use a small rated number of ampere-turns in the first
stage. The primary winding (2) and the secondary winding (3) of
Card 1/5

Cascade current transformer.

S/196/62/000/022/007/007
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the first stage (see sketch) are uniformly distributed over the
first core. The small number of uniformly-distributed circular
turns and the small dimensions of the core give the first stage
rigidity against short-circuit currents. The second stage has two
primary windings (5), (6) and secondary winding (7). Its core
(4) may be toroidal, or even rectangular of core or shell-type.
The primary winding (5) is a continuation of winding (2) of the
first stage, and short-circuit current also passes through it.
For rigidity, it should have the least possible number of turns,
preferably one. The conductor section of windings (2) and (5)
should be designed to ensure thermal stability. A further second
stage primary winding (6) is connected to the second winding of the
first stage (3). The considerable burden which the second stage
represents, and also the small section of the primary stage core,
causes this core to saturate when the current is heavy. Therefore,
the current in windings (3), (6) and (7) is considerably less than
in windings (2) and (5) (it does not exceed 50 times the rated
current). The section of conductors for windings (3), (6) and (7)
should be selected accordingly. Windings (5) and (6) should be

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Cascade current transformer

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wound in such a way that within the core currents in them are in the same direction. The number of turns in winding (7) is based on the condition

$$I_2 N_2 = I_1 N_1 + I_1^1 N_1^1,$$ where I_1, I_1^1 and I_2 are

the currents in windings 5, 6 and 7, and N_1, N_1^1 and N_2 are the number of turns in these windings. Since windings 5, 6 and 7 need only normal rigidity against short-circuit currents, the second stage may consist of ordinary bushing-type current transformers with porcelain insulators (with somewhat modified winding data). To these current transformers is fitted a first stage the data of which depend on the rated current, the rigidity class and the short-circuit current. Possible variants are: 1) winding (5) may have one or several turns; 2) the first stage may be made as an auto-transformer with a transformation ratio of 1:1; 3) to reduce the error, the first stage may be made with pre-magnetisation - the first stage core is divided into two unequal parts, the smaller having a premagnetising winding supplied from the terminals of an impedance connected in series with winding (6);

Card 3/5

Cascade current transformer.

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E194/E155

4) if the second stage core is of the shell type it is not
uniformly magnetised because winding (5) passes through only one
of the two windows of the core; to avoid this an equalising
winding is wound on the adjacent part of the core and connected in
series with winding (7); the number of turns in this equalising
winding, N_2^1, is selected according to the condition $I_1 = I_2 N_2^1$
(supposing that winding (5) has one turn). The advantages of the
construction are: high rigidity; no need for ferro-nickel alloys
as in single-stage construction; the possibility of using standard
multi-turn bushing transformers for the main part of the current
transformer.

[Abstractor's note: Complete translation.]

Card 4/5

Z/017/62/051/006/002/003
D409/D301

9.2120

AUTHOR: Hanuš, Jan, Engineer, Doctor

TITLE: Evaluating the economy of error-compensation in an instrument current transformer

PERIODICAL: Elektrotechnický obzor, v. 51, no. 6, 1962, 266-276

TEXT: The article describes three cases of transformer coupling used for error compensation in instrument transformers produced by the Elektrotechnické Závody J. Fučíka (J. Fučík Electrotechnical Engineering Plant) in Brno. In all three cases, the magnetic circuits of the current transformer were excited from an external source with a current of three times the nominal frequency. In one of the cases, this pre-excitation was combined with the compensation of electromotive force in the turns of the main magnetic circuit and the compensation of the no-load component of the excitation current with the aid of a capacitor. The effect of this compensation is evaluated by derivation of the specific admittance, dependent on the specific electromotive force, from the errors of a non-

Card 1/3

Evaluating the economy ...

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compensated and a compensated transformer. Admittance character-
istics are then compared with each other and with the characteris-
tics of commonly used ferromagnetic materials, giving a comprehen-
sive survey on the economy of the compensation method used. This
economy may be judged according to how much and what type of ferro-
magnetic material, coupled with the primary winding, can be saved
by the compensation. At given values of the mean line-of-force
length of the nominal flow, and the demands imposed upon output and
accuracy, the cross-section area of the magnetic circuit is directly
proportional to the specific admittance of the ferromagnetic mater-
ial used. This specific admittance can be reduced on instrument
current transformers by various methods of compensation. Results
obtained by pre-excitation, as described in the article, and rela-
ting to hot-rolled, or cold-rolled, magnetically oriented silicon
steel transformer sheets (sonaperm), show that under identical con-
ditions it is possible to reduce by one half the cross-section area
of the magnetic circuit as compared with transformers not pre-excit-
ed. The applied notion of specific admittance and specific voltage
for constant frequency is more advantageous when calculating current-
Card 2/3

Evaluating the economy ...   Z/017/62/051/006/002/003
                                              D409/D301

transformer errors than the notion of permeability. In conjunction
with values for reduced impedances, load and loss, and further flow
consideration, one thus obtains a more distinct outline of the laws
of transformer growth than by considerations based on magnetic in-
ductance and permeability of the ferromagnetic material. There are
10 figures and 5 tables. The English-language references are: A.
Boyajian: Orthomagnetic Bushing Current Transformer for Metering.
Transaction AIEE (1945), pp. 137-140; A.C. Schwager: Current Trans-
former Performance Based on Admittance Vector Locus. Transaction
AIEE (1942), pp. 26-30. (Technical editor: J. Kopeček).

ASSOCIATION: ŘOS-EJF Brno

SUBMITTED: March 10, 1962

Card 3/3

MUNK, V; PASKOVA, Jirina;   HANUS, J.

Factors Influencing Glucose Oxidase Activity in Submerged Cultivation
of Aspergillus niger on Synthetic Medium. Folia microbiol. 8 no. 4:203-14
Jl '63

1.Department of Microbiology, Central Research Institute of the Food
Industry, Prague,
    (OXIDOREDUCTASES) (ASPERGILLUS) (CULTURE MEDIA) (CITRATES)
    (GLUCOSE) (CALCIUM) (MAGNESIUM) (AMMONIA)
        (HYDROGEN-ION CONCENTRATION)

HANUS, Jaroslav, inz. RNDr., CSc.; HOJDEM, Bretislav, doc., inz.

Enzymatic determination of glucose in biological materials.
Prum potravin 14 no.10:552-554 O '63.

1. Ustredni vyzkumny ustav potravinarskeho prumyslu, Praha (for
Hanus). 2. Universita 17.listopadu, Praha (for Hojdem).

HANUS, K.

Two metabolic levels in bats. Cesk. fysiol. 7 no.3:232-234 May 58.

1. Biologicka fakulta KU, Praha.
        (METABOLISM,
                curves in bats (Cz))
        (BATS,
                metab. curves (Cz))

CZECHOSLOVAKIA

A.(S, ...; Laboratory of Physiology and Genetics of Animals,
Czechoslovak Academy of Sciences (Laborator Fysiologie a Genetiky
Zivocichu CSAV), Uhrineves.

"Investigation of Thermoregulation in Ruminants."

Prague, Ceskoslovenska Fysiologie, Vol 15, No 5, Sep 66, pp
374 - 375

Abstract: The determination of basal metabolism in ruminants is
discussed. During the first few days of starvation the metabolism
at rest does not decrease, and shows a slightly increasing ten-
dency, reaching a maximum on the 3rd day. The correct way of
measuring the metabolism of ruminants is within the first 24 hours
of starvation. In sheep the measurement should be taken with the
wool sheared to 3 mm; because of the excellent insulating proper-
ties of wool misleading results would be obtained otherwise. 1
Figure, no references. Submitted at 3 Days of Physiology of Dom-
estic Animals at Liblice, 8 Dec 65.

1/1

Czechoslovak Academy of Sciences (Laborator Fysiologie a Genetiky
Zivocichu CSAV), Uhrineves.

"The Technique of Determination of Total Metabolism of Sheep."

Prague, Ceskoslovenska Fysiologie, Vol 15, No 5, Sep 66, pp
375 - 376

Abstract: The author describes an inexpensive installation which
he designed for the measurement of metabolism in sheep. A diagram
and description of the installation are presented. Methods of
heat removal and air supply are discussed. Thermostatic instrumen-
tation can be regulated to maintain temperatures of -10° to + 40°C.
The accuracy of t e thermostat is ± 1°C. Overall dimensions of
the installation are 4x3x2 meters. 1 Figure, no references. Sub-
mitted at 3 Days of Physiology of Domestic Animals at Liblice, 8
Dec 65.

1/1

HANUS, L.

Terraces of the Mze River between Tachov and Krimice in the vicinity of plzen. p.81.
(Casopis Pro Mineralogii A Geologii, Vol. 62, No. 2, 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 9, Sept. 1957. Uncl.

HANUS, M.

Optimum reaction conditions for preparation of 2-vinyl-furan. I. Simek and M. Hanuš (Slovenská vysoká škola tech., Bratislava, Czech.). _Chem. zvesti_ 13, 103–10(1959) (German summary).—The effect of reaction time, temp. of the bath, amt. of Ac₂O, and of anhyd. AcONa on 1 mole furfural and catalysts α-picoline, pyridine, dimethylaniline, and K₂CO₃ on the Perkin synthesis of β-(2-furyl)acrylic (I) acid was studied. It was detd. that on decarboxylation of I without quinoline, the effect of the decompg. acid and the catalyst was in the area of exptl. error. By this modified method it was possible to increase the yield of raw 2-vinyl-furan by 10–15% as compared with the data in the litera-ture.

Jan Micka

HANUS, M.

Distr: 4E2c(j)

/ Polymerization of 2-vinylfuran. I. Šimek and M. Hanuš (Slovenská vysoká škola tech., Bratislava, Czech.). Chem. zvesti 14, 124-8(1960)(German summary).—By block polymerization of 2-vinylfuran in N atm., elastic polymers of light color, sol. in org. solvents can be obtained. The polymerization speed is relatively small. The application of strong inorg. acids and SiCl₄ and a thermal polymerization at higher temps. (150°) form hard, shiny, dark colored, insol., and infusible polymers. The speed of emulsion polymerization initiated by Na persulfate was detd. at 17-60°. Emulsion polymerization can be carried out at temps. considerably higher than reported in literature, and by increasing temp. up to 50°, the time of the polymerization can be shortened to approx. ¹/₁₀ (from 48 to 5 hrs.).   Jan Micka—

HANUS, Milan; VACLAVIK, Frantisek

Ensuring the winter operation of the Czechoslovak Airlines.
Letecky obzor 6 no.11:350-351 '62.

HANUS, Rudolf, inz.

Tests of a dual teletype line.   Cs spoje 7 no.11:13-14 N '62.

1. Jihomoravska krajska sprava spoju.

CZECHOSLOVAKL./Chemical Technology. Chemical Products and   H
          Their Applications. Chemical Engineering.

Abs Jour: Ref Zhur-Khim., No 8, 1959, 27696.

Author   : Hanus, S.; Kolar, V.
Inst   :
Title   : Study of Mixing. II. Analytical Method Using Insoluble
           Particles; Statistical Experimental Method for the Study
           of Mixing in Liquid Media.   III. Effect of Mechanical
           Agitation on Rate of Solution of a Granular Solid Phase.

Orig Pub: Chem Listy, 52, No 5, 839-851, 852-858 (1958) (in Czech)

Abstract: II. An experimental method has been developed for the
          study of a mixing process based on the observation of
          a single particle in the agitated liquid. The method
          permits the investigation of mixing conditions in var-

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CZECHOSLOVAKIA/Chemical Technology. Chemical Products and
        Their Applications. Chemical Engineering.

H

Abs Jour: Ref Zhur-Khin., No 8, 1959, 27696.

        ious portions of the liquid and thus makes it possible
        to obtain a more detailed picture of the mixing taking
        place in the space occupied by the agitated liquid.
        The data obtained by this method are in agreement with
        data obtained by other workers.

        III. An equation has been derived for the rate of solu-
        tion of a granular solid phase in a mechanically agi-
        tated liquid. The equation expresses the Nusselt dif-
        fusion number as a function of the Reynold's number,
        the Schmidt number, and two simplex parameters, one of
        which reflects the effect of the specific gravity of
        the two phases, and the other gives the effect of tur-

Card   : 2/3

CZECHOSLOVAKIA/
        Their Applications. Chemical Engineering.

Abs Jour: Ref Zhur-Khin., No 8, 1959, 27696.

        bulence. For Communication I see RZhKhim, 1958,
        60803. -- M. Ryba.

Card   : 3/3

RIBAL, Miloslav, inz.; HANUS, Stanislav, inz.; BERNASEK, Vladimir

Use repellents as protection against damage caused by deer. Agrochem 2 no.1:18-22 '62.

1. Ceskoslovenska akademie zemedelskych ved, Vyzkumny ustav lesniho hospodarstvi a myslivosti, Zbraslav (for Ribal and Hanus). 2. Spolana, Neratovice (for Bernasek).

DOLEJS, L.; HANUS, V.

"Mass spectrometry; organic chemical applications" by
K. Biemann. Reviewed by L. Dolejs, V. Hanus. Coll Cz
Chem 29 no.4:1083 Ap '64.

HANUS, VACLAV

Mineralogy and geochemistry of the copper-lead-zinc deposit of Vrančice, with chalcocite and willemite (Příbram ore region, Bohemia). Václav Hanuš. Sbornik ústřed. ústavu geol. 22, 69-14 [1955] (English summary).—The presence of chalcocite and willemite is unusual in primary ore deposits. A study of succession shows that they were formed in a process of hypogene mineralization. The main minerals found are sphalerite, galena, and hematite. The gang consists mainly of calcite and dolomite. The ore deposit shows signs of three periods of deposition. The ores were deposited in the following order: Zn-Pb-Cu, Ag-As, Sb. The deposit is characterized by a S deficiency, as indicated by the presence of native Cu and Ag and of Fe oxides.

R. Pick

HANUS, V.

Problems of the deposit-forming metasomatosis. In German. p. 74

Prague. Ustredni ustav geologicky. VESTNIK. Prague, Czechoslovakia, Vol. 34, no. 1, 1959

Monthly List of East European Accessions (EEAI), LC, Vol. 8, no. 11, Nov. 1959 Uncl.

SUBJECT,   ...wg

Country: Jzechoslovakia

Academic Degrees: /not given/

Affiliation: Central Geological Institute (Ustredni ustav geologicky), Prague.

Source: Prague, Vestnik Ustredniho Ustavu Geologickeho, Vol XXXVI, No 5, June 1961, pp 343-345. 361-363.

Data: "The Position of Hematite (Specularite) and Magnetite in the General Succession of the Hydrothermal Deposits of the Spissko-Gemerske Rudohorie Mountains."

"The Time Relation of the Gemerid Grantites and Tourmalization to the Hydrothermal Mineralization in the Spissko-Gemerske Rudohorie Mountains."

Authors: BERNARD, Jan H.

HANUS, Vaclav

HANUS, V.

CZECHOSLOVAKIA

HANUS, V; KRS, M.

1. Central Geological Institute (Ustredni ustav geologicky),
      Prague ; 2. Institute of Geophysics (Ustav uzite
      geofyziky), Prague (for all)

Prague, Vestnik ustredniho ustavu geologickeho, No 2, 1963,
      pp 119-121

"Paleomagnetic Verification of the Neoidic Age of Hydro-
      thermal Mineralization in the Krusne Hory Mts.
      and in the Slavkovsky les."

HANUS, Vaclav, promovany ekonom.

Labor economy and labor biological problems. Prace mzda 11
no.4:189-192 Ap '63.

HANUS, Vaclav, promovany ckonom

Work remuneration and biological labor problems. Prace mzda 11
no.5:235-238 My '63.

HANUS, Vaclav ; KRS, Miroslav

Palaeomagnetic dating of hydrothermal mineralization on example
of Spissko-Gemerske rudohorie area, Czechoslovakia. Rozpravy
mat CSAV 73 no.14:1-87 '63.

1.Central Geological Survey, Prague 1, Hradebni 9; Institute
of Applied Geophysics, Prague 5, Podbelohorska 47.

24(2,4)   PHASE I BOOK EXPLOITATION   CZECH/2433

International Polarographic Congress. 1st, Prague, 1951

Sborník I. Mezinárodního polarografického sjezdu. Díl 3: Hlavni
  referaty prednesene na sjezdu. Proceedings...Vol 3: Reviews
  Read at the Congress. Praha, Prírodovedecke vyd-ví [1952]
  774 p. 2,000 copies printed.

Resp. Ed.: Jiří Koryta, Doctor; Chief Ed. of Publishing House:
  Milan Skalník, Doctor; Tech. Ed.: Oldřich Dunka.

PURPOSE: The book is intended for chemists, chemical engineers,
  and physicists.

COVERAGE: The book is a collection of reviews and original papers
  read at the International Polarographic Congress held in Prague
  in 1951. Uses of polarography in organic and inorganic analysis,
  biochemistry, medicine, and industrial chemistry are discussed.
  In the section, Reviews Read at the Congress, Russian and
  either German or English translations of each review are
  presented. In the section, Original Papers Read at the Congress,
  only those translations in Russian, German, and English which

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Proceedings (Cont.)   CZECH/2433

    have not been published in Volume I are presented. The
following scientists participated in the opening of the
Congress: Professor Wiltor Kemula, Dean of the Faculty
of Sciences, Warsaw; Doctor Jaromir Dolansky, Minister
of Planning; Professor Jaroslav Herovsky, Chairmen of
the Congress; and Professor Jaroslav Pukatko, Chairman
of the Center for Scientific Research and Technical
Development. References follow each paper.

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Card 3/14

Proceedings (Cont.)   CZECH/2433

Svatek, E. Study of Catalytic Reactions at a Dropping
Mercury Electrode   667

Koryta, J. Decomposition Rate of the Complex of
Nitrilotriacetic Acid With Cadmium   672

Smutek, M. Slow Electrode Reactions   677
    [Russian Translation]   683
    [English Translation]   687

Hanus, V. Polarographic Study of the Recombination of
Phenylglyoxylic Acid   691

Koutecky, J. Linear Systems of Electrode Reactions in
Which a Chemical Reaction in Solution Takes Place   699

Pliva, J. Contribution to the Theory of Diffusion Cur-
rents   708
    [Russian Translation]   712
    [English Translation]   717

Card 12/14

C A

HANUSH, [V.]

Polarographic study of the decomposition of penicillin in acidic solutions. V. Hanuš and E. Krejčí (Charles Univ., Prague, Czech.). *Chem. Listy* 46, 53-3(1952).— Benzylpenicillin is reduced polarographically at pH 4.6 giving 2 waves. The max. diffusion current is found at pH 2.2. The wave height decreases with increasing time of reaction. Benzylpenicillic acid is believed to be the proper reducing component. The polarographic detn. of penicillin is suggested. M. Hudlický

CA

HANUSH, V.

The effect of the ionic recombination on the polarographic reduction of dibasic acids. V. Hanuš and R. Brdička (Charles Univ., Prague). Chem. Listy 44, 291-7(1950). Equations have been derived which account for the effect of ionic recombination on the polarographic limiting currents caused by the reduction of the undissoc. mols. or anions belonging to dibasic acids. As long as the limiting reduction currents of the undissoc. mols. appear in the range of pH where these mols. are practically absent in the body of the soln., their variation with pH can be expressed as follows: $2\,\mathrm{pH} = \mathrm{p}K_2' + \log i_{max} - \log(i_\infty - i) + \log [\mathrm{H}^+] + A$. Here, i_∞ denotes the limiting reduction current of univalent anions, K_2 the 2nd acid dissocn. const., and $\mathrm{p}K_2'$ corresponds to the first apparent polarographic dissocn. const. which is a definite function of the equil. dissocn. const. of the specific rate because of the ionic recombination and of the drop time owing to the capillary electrode. The equation concerned shows that the apparent polarographic dissocn. curve for dibasic acids is not, in general, symmetrical one, and it can be twice as steep as the dissocn. curve owing to univalent acids. All the relations derived theoretically have been verified by exptl. data obtained with maleic, citraconic, and fumaric acids. The thickness of the reaction layer surrounding the surface of the capillary electrode (according to the Wiesner statistical conception) and the abs. rate const. of ionic recombination for the above acids have been computed.
Miloš Hudlický

1951

CH HANUŠ, (V.)

Electrochemistry - 4

Polarographic study of the recombination of phenyl-glyoxylic acid. VI. Hanuš. (Charles Univ., Prague). *Sbornik Mezinárod. Polarog. Sjezda Praze, 1st. Congr.* 1951, Pt. 1., *Proc.* 881-11(in Russian), 811-17(in German).— The reduction of phenylglyoxylic acid is irreversible over the pH range 0-14. In very acid and very alk. soln. only one wave is obtained which is ascribed to the undissocd. mols. and to the corresponding anions, resp. The 2 types of reductions occur simultaneously over the range of pH 5-8, resulting in 2 waves. The first of these is largely detd. by the velocity of the recombination of anions with H⁺ at the surface of the dropping-Hg electrode. The ratio of this kinetic current (1st wave) to the total current (sum of both waves) was studied in detail. It was independent of the concn. of the depolarizers and was not influenced by deformable cations or anions, boric acid, and capillary active materials, nor by a change in the resistance of the elec. circuit. It is only little influenced by the velocity of outflow of Hg and by temp. However it is mainly controlled by pH and drop time as well as by the concn. of the buffers and the ionic strength of the soln. Certain deviations between the exptl. data and calcns. based on the equations of Koutecký and Brdička (*C.A.* 43, 484) are discussed. O. H. Müller

Hanus, V.

Evaluation of the rate constant of the decomposition of hydrogen peroxide by catalase from the polarographic limiting current of oxygen. J. Koutecký, R. Brdička, and V. Hanuš (Czech. Acad. Sci., Prague). Collection Czech. Chem. Communs. 18, 611-28(1953)(in English); Chem. Listy 47, 793-805(1953).—Previous interpretations of the effect of catalase on the polarographic limiting currents due to the reduction of O were revised. Calcns. of the rate const. based on the concept of a reaction layer at the electrode were of only limited value. A rigorous soln. was given of the appropriate system of differential equations, taking into account the growth of the Hg drop, for a reaction in which half the originally present reactant (O) was regenerated from the reduction product (H_2O_2) by a chem. reaction with the catalyst (catalase). Values for the resulting function were tabulated, and the rate consts. calcd. by means of it were in good agreement with values obtained by direct manganometric measurements.
                                         Otto H. Müller

HANUS, V.; KOUTECKY, J.; BRDICKA, R.

Hanus, V.; Koutecky, J.; Brdcka, R. "Calculation of the rate constant for the decomposition of hydrogen peroxide by catalase from polarographic limiting currents caused by oxygen. p. 793. CASOPIS PRO PESTOVANI MATEMATIKY. CZECHOSLOVK MATEMATICAL JOURNAL. Vol. 47 No. 6 June 1953 Praha, Czechoslovakia.

SO: Monthly List of East European Accessions, L. C. Vol. 3 No. 1 Jan. '54 Uncl.

Czechoslovakai/Physical Chemistry. Electrochemistry   B-12

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22519.

Author   : Vladimir Hanus.
Inst   : Not given
Title   : Solution of Problems Related to Polarographic Kinetic Points,
           Limited by Bi-molecular Chemical Reactions with the Aid of Ap-
           proximation Method.

Orig Pub : Chem. zvesti, 1954, 8, No 10, 703-713. (czech.,Res.russ.,nem.)

Abstract : Bases of approximation method (of Brdichki and Visner) of solu-
           tions of problems of kinetic current limitations in polarogra-
           phy are stated, in which it is assumed that a) chemical reac-
           tion takes place in a thin near-electrode layer of a determined
           extent; b) substance concentrations, taking part in the pro-
           cess, have certain average values which do not change during the
           life of a drop; c) concentration gradient of the electroactive
           form on the surface of an electrode is equal to the difference
           of concentrations on the surface and at the limit of the react-
           ive layer divided by the thickness of the reactive layer; d)
           concentration of inactive forms at the surface of the elect-
           rode is equal to the difference between the hypothetically dif-

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Czechoslovakia/Physical Chemistry. Electrochemistry.   B-12

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22519.

           fused current which would occur at an infinite high speed of
           the chemical stage, and the observed kinetic current divided
           by the constant of Il'covich's equation for the given form.
           Six examples of equations for kinetic currents are evolved in
           the course of 2nd degree reactions on the electrode. It is
           indicated that the method of approximation permits to
           resolve easily problems insoluble or difficultly soluble by a
           precise method, but speed constant values thus obtained could
           be 2 or 3 times smaller or larger than the actual ones.

Card 2/2   -184-

HANUS VLADIMIR

HAAUS, V

CZECH

621.316.722.9

3168. A degenerative voltage stabilizer with a possibility of overcompensation. M. PACAK AND V. HAAUS. Slaboproudý Obzor, 16, No. 2, 75–82 (1955) in Czech.

The system is particularly suitable for stabilization of voltages of the order of several kV, since its d.c. amplifier consists of two valves operating with a common cathode resistance. A source of reference voltage can be connected into the grid circuit of either of the amplifying valves. Operation of the circuit and its stability are analysed in detail. Two practical stabilizers (2·0 kV and 200 V) are described in detail, their performance being illustrated by a number of experimental curves. The system is compared with a stabilizer designed by R. B. Mackenzie [Abstr. 976 (1954)].

R. S. SIDOROWICZ

HANUS, VLADIMIR

C Z E C H

Two examples of rapid bimolecular reactions participating in the depolarization process on the dropping mercury electrode. Jaroslav Koutecký and Vladimir Hanuš. *Collection Czechoslov. Chem. Commun.* 20, 124-88(1955)(in German).—See C.A. 49, 1445i. R.J.C.

Hanus, Vc.

CZECHOSLOVAKIA/Nuclear Physics   C-2

Abs Jour   : Referat Zhur - Fizika, No 5, 1957, 11001

Author   : Cermah Vladimir, Hanus Vladimir

Inst   : Not given

Title   : Remarks on the Article by Ondracek "Mass Spectrograph of
               the Research Institute of Vacuum Electronics."

Orig Pub   : Slaboproudy obzor, 1956, 17, No 8, 456-457

Abstract   : See Referat Zhur Fizika, 1956, 1583.

Card 1/1

HANUS, V.

Polarographic behavior of phthalic acid and some of its esters. A. Ryvolová and V. Hanuš. Collection Czech. Chem. Communs. 21, 853-61(1956)(in German).—See C.A. 50, 4675f.

E. J. Cox

HANUS, VLADIMIR

√ Polarographic behavior of phthalic acid and some of its esters. Anna Ryvolová and Vladimir Hanuš (Čsl. akad. Věd., Prague). *Chem. Listy* 50; 40-46(1956).—The polarographic reduction of phthalic acid on the dropping Hg-electrode in buffered solns. was accompanied by 3 waves, the reduction of corresponding monoesters by 2, and that of some diesters by 1 wave. The appearance and the height of the waves depended on the pH value of the soln. The interpretation of these waves was based on the assumption of various recombination possibilities, according to which the 1st of the waves was produced by the reduction of phthalic acid in the form of a cation, the 2nd one by the reduction of the undissocd. mol., whereas the last one was the wave of the univalent anion. The rate consts. of recombination and dissocn. were computed.   F. Štráfelda

CZECHOSLOVAKIA / Physical Chemistry. Kinetics. Combustion.   B-9
                    Explosions. Topochemistry. Catalysis.

Abs Jour   : Ref Zhur - Khimiya, No 3, 1959, No. 7594

Author   : IV. Janda, Jan
              V. Janda, J.; Hanus, V.; Obertik, J.
Inst   : Not given
Title   : Catalysts of Vinyl Chloride Synthesis. IV. Intermediate
              Reaction Product Formed During Synthesis in Presence of
              Water. V. Form of Inactivation of Mercury Catalyst

Orig Pub   : Chem. zvesti, 1958, 12, No 1, 37-47; No 3, 155-162

Abstract   : IV. Description of preparation and properties of hitherto
              unknown compounds that are formed during synthesis of vinyl
              chloride over mercury catalysts in the presence of H_2O.
              The formula of one of the compounds has been identified as
              di-(alpha, alpha-'chloromercury-beta, beta-dichlorethyl-
              dichlormercury-acetaldehyde)-mercury oxide. In contrast

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Abs Jour   : Ref Zhur - Khimiya, No 3, 1959, No. 7594

              with current views it is shown in the paper that mercury
              chloride catalyzes the formation of vinyl chloride and
              some other reactions which take place during synthesis of
              vinyl chloride, even when the catalyst is not deposited
              on a substance of large specific surface.

              V. The mercury catalyst used in the synthesis of vinyl
              chloride is poisoned mostly by excess C_2H_2 and H_2O vapor.
              The only apparent reaction resulting in reduction of
              mercury salt to Hg_2Cl_2, or even to metallic mercury, and
              in formation of elemental carbon, is the reaction between
              acetylene, Hg_2Cl_2 and water. Communication III see RZhKhim,
              1959, 3936. -- Part of the summary by the authors

Card 2/2

Z/009/60/000/011/001/001
E112/E153

AUTHORS: Dolejšek, Z, Grubner, O, Hanuš, V, Kössler, I,
              Matyska, B, and Vodehnal, J.

TITLE: Analytical Control of Isoprene Rectification

PERIODICAL: Chemický průmysl, 1960, No. 11, pp, 571 – 575

TEXT: For the stereoscopic polymerization of isoprene,
monomers of sufficiently high quality are essential.   Purification
of isoprene on a large scale is carried out by distillation
processes.   Technical isoprene contains various saturated and
unsaturated hydrocarbons with 4, 5 or 6 carbons.   Separation
is accomplished by azeotropic distillation, adding acetaldehyde,
propylene oxide, methyl formate, methanol, isopentane,
isopropylamine, acetone, water or aqueous acetone as azeotropic
agent,   As the literature does not contain sufficient data about
the boiling points of the different mixtures the authors have
undertaken a study of the normal rectification of isoprene on
efficient columns and have followed the concentrations of the
different components in the various cuts.   The effect of water
and methyl alcohol as azeotropic agents was also considered.
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Z/009/60/000/011/001/001
E112/E153

Analytical Control of Isoprene Rectification

Two types of isoprene from different sources were investigated:
1) Soviet material, with 96% isoprene content, and 2) Czecho-
slovak material, prepared from isobutylene and formaldehyde, with
13% isoprene. The different distillation fractions were analysed
by mass spectrography, infrared spectroscopy and gas chromato-
graphy, using thermoconductivity cells for detection.   A
chromatogram of sample B (Czechoslovak), e.g. first sample of
condensate from still-head is shown (Fig.1), revealing 8 peaks
and identified as follows: 1) isobutylene, not isolated in
pure state but found in one fraction in an amount of 15%
together with 85% 3-methylbutene-1;   2) and 3), peaks
appertaining to butene-1 and butene-2 (confirmation of structure
through mass spectrography);   4) 3-methylbutene-1 (this compound
was isolated from one fraction in 99.5 purity and identified
spectroscopically by comparison with data in the literature;
5) 2-methylbutene-1 (this compound was identified by comparison
with literature data. It was obtained by fractional distillation
in approximately 80% purity. It was also obtained by preparative
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E112/E153

Analytical Control of Isoprene Rectification

gas chromatography, and both samples proved identical);
6) isoprene: standard prepared by fractional distillation in
99.98% purity and by preparative chromatographic method (ethyl
cyclopentanecarboxylate as stationary phase);   7) 2-methylbutene-2
prepared by fractional distillation in 98% purity (identified by
method used for 3-methylbutene-1; compound prepared for
identification purpose also by preparative gas chromatography).
Chromatogram of sample A (Soviet isoprene) revealed similar
characteristics.   A special peak (4b) was noticed, the identity
of which was not yet determined. Results of practical
distillation tests were as follows.   Sample A was distilled over
a low-efficiency column with reflux ratio 13:1. Pentene
contents were reduced from 4 to 1.2%, and isoprene of 98.8% purity
and in yields of 80% was collected. Using a more efficient column
with reflux ratio 40:1   equilibrium was established after 2 hours
and isoprene of 99.98% purity was obtained in poor yields.
Attempts to improve yields by the addition of azeotropic agents
(methanol, water) failed. Distillation of sample B was undertaken
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Analytical Control of Isoprene Rectification

over a column with reflux ratio 4:1. The concentration of
isoprene in the middle fraction was doubled and the distillate
contained only four components: 3-methylbutene-1; 2-methyl-
butene-1; isoprene; 2-methylbutene-2. A further fractionation
over a column with reflux ratio 25:1 yielded further fraction,
from which only those containing 2-methylbutene-1, isoprene and
2-methylbutene-2 were collected. Distillation of the three
combined fractions over a column with reflux ratio 40:1 gave a
two-component mixture in which the pentene concentration amounted
to only 13%. By azeotropic distillation with acetone,
conversion into high-grade isoprene could be achieved. It is
claimed that yields were satisfactory. Acknowledgements are
made to Doctor J. Pech, director, VÚSK Gottwaldov for useful
advice and for supplying some of the raw materials.
There are 6 figures, 4 tables and 16 references (including several
patents to one reference): 11 English, 4 Czech and 1 Soviet.
ASSOCIATION: Ústav fyzikální chemie ČSAV, Praha (Institute for
Card 4/6   Physical Chemistry, ČSAV Prague)
SUBMITTED: June 6, 1960

Z/009/60/000/011/001/001
E112/E153

Analytical Control of Isoprene Rectification

Obr. 1

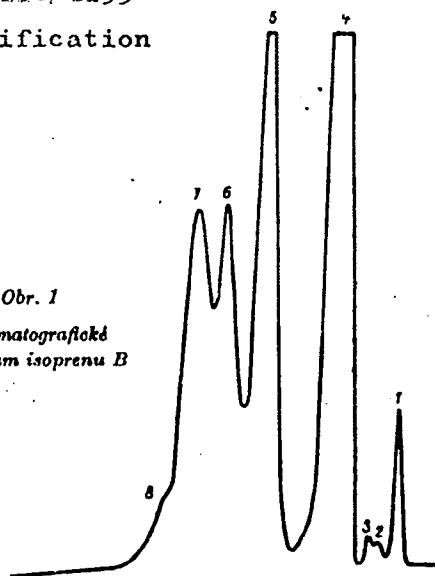Chromatografické
spektrum isoprenu B

Fig.1

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Z/009/60/000/011/001/001
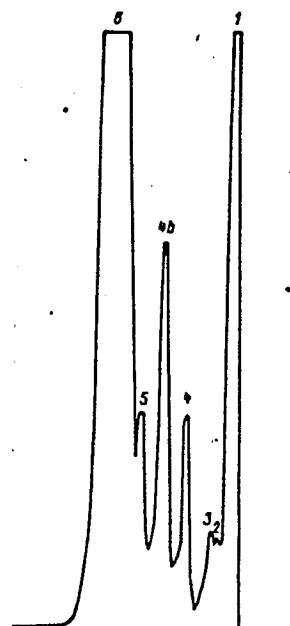E112/E153

Analytical Control of Isoprene Rectification

Fig.4

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Z/038/60/000/010/005/006
A201/A026

AUTHORS: Hanŭs, Vladimír; Dolejšek, Zdeněk

TITLE: Rearrangement of Some C7H8 Isomers Induced by Electron-Impact
                Ionization

PERIODICAL: Jaderná energie, 1960, No. 10, pp. 350 - 352

TEXT: S. Meyerson and P.N. Rylander (Ref. 1 through 4) have shown that
ionization by electron impact in toluene results in the formation of tropylium ions.
The authors carried further this study in an attempt to determine the influence of
the structure of some other C7H8 isomers on their behavior during ionization, and
to learn the possibilities of some mass-spectrometric methods for the study of the
structure and properties of ions in gaseous phase. This study has not been com-
pleted yet and the paper presents partial results obtained so far. The following
C7H8 isomers were studied: cycloheptatriene; toluene; spiro-(2.4)-heptadiene-
-(1.3); ethynyl cyclopentene-(1); ethynyl cyclopentene-(2); and bicyclo-(2.2.1)-
-heptadiene-(2.5). The following studied: the relative representation of frag-
mentation ions in dependence on the ionizing electron energy; the influence of the
drawing-out voltage on the mass spectra; and the decomposition of accelerated ions,

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A201/A026

Rearrangement of Some C_7H_8 Isomers Induced by Electron-Impact Ionization

both spontaneous and induced by collisions with molecules of inert gases. Measurements were performed with a Nier-type mass spectrometer. It was found that the mass spectra of all six compounds, when obtained under similar conditions, were similar with a few exceptions in ethynyl cyclopentene-(1) and bicyclo(2.2.1)-heptadiene-(2.5). The spectra obtained are shown in Figure 1. Also changes of the electric field, by which ions are drawn out of the source, exerted practically the same influence on the mass spectra of all six compounds. It was further found that the definition properties of the instrument depend primarily on the kinetic energy of ions and not on their mass, and that with the exception of metastable ions the time during which ions remain in the source has no appreciable influence. In all compounds studied the same metastable ions were observed, corresponding to the spontaneous decomposition of ions during their time of flight from the accelerating field slit to the magnetic analyzer. These similarities indicate that the ionizing fragmentation in all six compounds proceeds basically in the same way. The main reaction, common to these isomers, is the formation of a molecular ion with a seven-membered cyclic structure, which decomposes to tropylium ions by splitting-off of a hydrogen atom. In ethynyl cyclopentene-(1), and even more in bicyclo-(2.2.1)--heptadiene-(2.5), competing side reactions of the decomposition of the excited

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Rearrangement of Some C_7H_8 Isomers Induced by Electron-Impact Ionization

molecular ions assert themselves in addition to the above main reaction. In the former, the reaction competing with the formation of a fragmentation tropylium ion is the one by which $C_5H_3^+$ is formed, which is then represented in a larger propor- tion than in cycloheptatriene. In bicyclo-(2.2.1)-heptadiene-(2.5), an increased rate of $C_5H_6^+$, $C_3H_4^+$ and $C_3H_3^+$ ions can be observed. The large representation of $C_5H_6^+$ ions obviously corresponds with the splitting-off of acetylene from the mole- cular ion. These ions do not decompose further to $C_5H_5^+$. The similarity of the spectra of the other four compounds indicates that in the rearranged parent ions, which for these compounds have the same structure, the excitation energy is dis- tributed across the entire molecule in such a manner that equilibrium is reached before the fragmentation of parent ions takes place. The differences in the rela- tive representation of molecular ions, tropylium ions, and the remaining fragmenta- tion ions are related to the extent of the excitation energy in the rearranged parent ions, and are obviously due to the difference in the combination heat of the parent compounds. It is remarkable that from the total amount of ions, the portion of molecular ions depends on the combination heat to a far greater extent than the portion of ions formed by the tropylium fragmentation. The possibility cannot be

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Rearrangement of Some C_7H_8 Isomers Induced by Electron-Impact Ionization

excluded that upon the formation of tropylium ions, or immediately thereafter, be-
fore they decompose any farther, an energy emission by radiation transitions takes
place, which might reduce the original differences in the extent of the excitation
energy of rearranged C_7H_8 ions formed by ionization from different isomers. Should
it become possible to prove that ions with the structure of parent moleculars
practically are not represented among the molecular ions of these compounds, then
the obtained data would largely contribute towards a more accurate understanding
of processes preceding ionization fragmentation of more complicated molecules by
electrons with energies in the range of several tens ev. There are 8 figures and
8 references: 7 English and 1 German.

ASSOCIATION: Ústav, fysikální chemie ČSAV (Institute of Physical Chemistry, ČSAV)
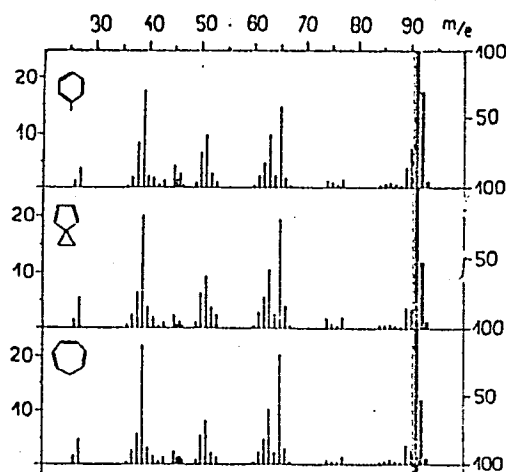in Prague

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Figure 1: Mass spectra of (A) toluene;
(B) spiro-(2.4)-heptadiene-(1.3); (C)
cycloheptatriene; (D) ethynyl cyclopen-
tene-(2); (E) ethynyl cyclopentene-(1);
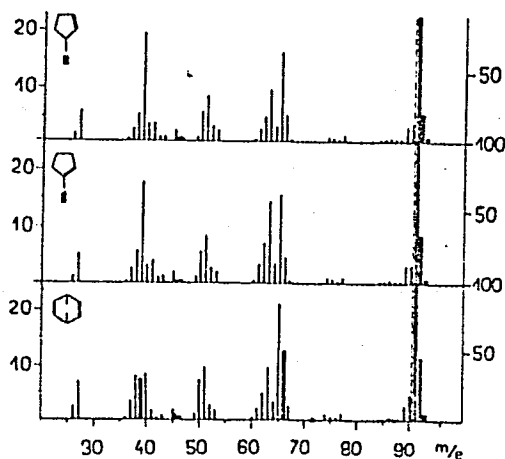(F) bicyclo-(2.2.1)-heptadiene-(2.5)

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Rearrangement of Some C₇H₈ Isomers by Electron-Impact Ionization

(Figure 1 cont'd)

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AUTHORS: Koutecky, J.,   Hanus, V.,   S/076/60/034/03/025/038
              Mayranovskiy, S. G. (Moscow)   B005/B016

TITLE: Polarographic Catalytic Hydrogen Waves Caused by Organic Catalysts.
              I. Exact Solution of the Problem for the Case of a Bimolecular
              Regeneration of the Inactive Form of the Depolarizer From the
              Products of Electrode Reaction, and of a Monomolecular Conversion
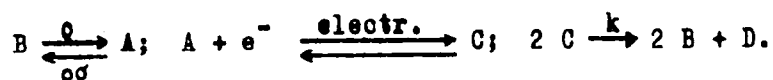   of the Depolarizer to Its Active Form

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 651-660 (USSR)

TEXT: In connection with investigations on catalytic hydrogen separation from
buffer solutions on a dropping mercury electrode the authors aimed at explaining
the complicated depolarization process for those cases in which the rates of the two
chemical reactions taking place on the electrodes are very high (this means that
equilibrium between diffusion and the chemical reactions is quickly established),
and in which the concentration of the proton donors practically does not change
with time. In this case, the concentrations of the components of the buffer system
may be included into the two effective rate constants ϱ and $\varrho\sigma$ of a monomolecular
reversible reaction. The following schematic reaction equations are then obtained
for the depolarization process:

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Polarographic Catalytic Hydrogen Waves Caused
by Organic Catalysts. I. Exact Solution of the
Problem for the Case of a Bimolecular Regeneration
of the Inactive Form of the Depolarizer From the
Products of Electrode Reaction, and of a Mono-
molecular Conversion of the Depolarizer to Its Ac-
tive Form

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$$B \xrightarrow[\varrho\sigma]{\varrho} A; \quad A + e^{-} \xrightarrow{\text{electr.}} C; \quad 2C \xrightarrow{k} 2B + D.$$

B - base (electrochemically inert form of the depolarizer); A - depolarizer
(electrochemically active acid conjugated to B, which is in equilibrium with B
in the solution); C - product of the electrode process; D - hydrogen. For the cal-
culations an ideal mobility was assumed for the electrochemical equilibrium, so that
the ratio $\lambda = [A]_0 / [C]_0$ depends only on the potential, but not on time. As a
further simplification the diffusion coefficients for the substances A, B, and C
were assumed to be equal. It results therefrom that the algebraic sum of the dif-
fusion currents flowing through random cross section is equal to zero. It was
further assumed that the rates of all reactions mentioned above are very high al-
ready at a relatively small distance from the electrode, $\varrho t_1 \gg 1$; $\varrho\sigma t_1 \gg 1$;
$k\alpha t_1 \gg 1$. t_1 - dropping period of the mercury electrode; $\alpha = [A] + [B] + [C]$. Under
these conditions a steady state forms after a very short time t_s of electrolysis
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